

CLAIMS

1. A method for controlling flow of requests and replies between a first electronic device that stores new and pending requests in an electronic memory and retrieves new and pending requests from the electronic memory for transmission, and a second electronic device that accepts requests transmitted from the first electronic device, transmitting back to the first electronic device an ACK reply, and rejects requests transmitted from the first electronic device, transmitting back to the first electronic device a NAK reply, the method comprising:

storing by the first electronic device a retry bit associated with each stored request;

storing by the second electronic device a retry vector containing bits corresponding to electronic devices from which the second electronic device receives requests;

maintaining a copy in storage, by the first electronic device, of each request until an ACK reply corresponding to the request is received by the second electronic device;

employing the retry bits associated with each stored request by the first electronic device to mark requests for retransmission; and

employing the retry vector by the second electronic device to mark electronic devices that need to retransmit one or more rejected requests.

2. The method of claim 1 wherein, when the first electronic device receives a NAK reply from the second electronic device:

when the request corresponding to the NAK reply is the oldest pending request directed to the second electronic device, setting the retry bits of all subsequent requests directed to the second electronic device and retransmitting the oldest pending request to the second electronic device with a special marker bit; and

when the request corresponding to the NAK reply is not the oldest pending request directed to the second electronic device, retransmitting the request to the second electronic device without a special marker bit.

3. The method of claim 1 wherein, when the second electronic device receives a request from the first electronic device:

when the retry vector bit corresponding to the first electronic device is set and when no special marker bit is set in the request, sending a NAK reply back to the first electronic device; and

when the retry vector bit corresponding to the first electronic device is not set or a special marker bit is set in the request,

determining if the request can be processed by the second electronic device,

when the request can be processed by the second electronic device, resetting the retry vector bit corresponding to the first electronic device and sending an ACK reply back to the first electronic device, and

when the request cannot be processed by the second electronic device, setting the retry vector bit corresponding to the first electronic device and sending a NAK reply back to the first electronic device.

4. The method of claim 1 wherein the first electronic device stores new and pending requests in a source input queue.

5. The method of claim 1 wherein the first electronic device is a source node and the second electronic device is a destination node within a computer system comprising interconnected and intercommunicating electronic devices.

6. The method of claim 1 wherein the first electronic device is a producing node and the second electronic device is a destination node within a computer system comprising interconnected and intercommunicating electronic devices.

7. The method of claim 1 wherein the first electronic device is a producing node and the second electronic device is a consuming node within a computer system comprising interconnected and intercommunicating electronic devices.

8. The method of claim 1 wherein the first electronic device is a source node and the second electronic device is a consuming node within a computer system comprising interconnected and intercommunicating electronic devices.

9. The method of claim 1 wherein the first electronic device is directly connected to the second electronic device by an electronic communications medium.

10. The method of claim 1 wherein the first electronic device is indirectly connected to the second electronic device by a first electronic communications medium, a forwarding node, and a second electronic communications medium.

11. The method of claim 1 wherein the first electronic device is indirectly connected to the second electronic device by a number of electronic communications media and forwarding nodes.

12. The method of claim 1 wherein the first electronic device and second electronic device are bus interconnect components within a computer system.

13. The method of claim 1 wherein each bit of the retry vector corresponds to an electronic device, directly connected to the second electronic device, that can send requests to the second electronic device.

14. The method of claim 1 wherein each bit of the retry vector corresponds to a unique set of electronic devices that originate and forward requests to the second electronic device.

15. A system containing two intercommunicating electronic devices comprising:
a first electronic device that stores new and pending requests in an electronic memory and retrieves new and pending requests from the electronic memory for transmission;
a retry bit associated with each stored request within the first electronic device;
a second electronic device that accepts requests transmitted from the first electronic device, transmitting back to the first electronic device an ACK reply, and rejects requests

transmitted from the first electronic device, transmitting back to the first electronic device a NAK reply; and

a retry vector maintained by the second electronic device containing bits corresponding to electronic devices from which the second electronic device receives requests that need to retransmit one or more rejected requests.

16. The system of claim 15 further comprising:

control logic within the first electronic device that, when a request corresponding to a NAK reply is the oldest pending request directed to the second electronic device, sets the retry bits of all subsequent requests directed to the second electronic device and retransmits the oldest pending request to the second electronic device with a special marker bit.

17. The system of claim 16 wherein, when a request corresponding to the NAK reply is not the oldest pending request directed to the second electronic device, the control logic retransmits the request to the second electronic device without a special marker bit.

18. The system of claim 15 further comprising:

control logic within the second electronic device that receives a request from the first electronic device and, when the retry vector bit corresponding to the first electronic device is set and when no special marker bit is set in the request, sends a NAK reply back to the first electronic device.

19. The system of claim 18 wherein, when the retry vector bit corresponding to the first electronic device is not set or a special marker bit is set in a received request, the control logic determines if the request can be processed by the second electronic device and, when the request can be processed by the second electronic device, resets the retry vector bit corresponding to the first electronic device and sends an ACK reply back to the first electronic device.

20. The system of claim 19 wherein, when the request cannot be processed by the second electronic device, the control logic sets the retry vector bit corresponding to the first electronic device and sends a NAK reply back to the first electronic device.

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